

09/647130

## CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this Transmittal Letter and the papers indicated as being transmitted therewith are being deposited with the United States Postal Service on this date shown below in an envelope as "Express Mail Post Office to Addressee" under the below indicated Mailing Label Number, addressed to: Box PCT, Assistant Commissioner for Patents, Washington, D.C. 20231.

Mailing Label No.: EK347082663USDeposit Date: September 26, 2000Name: Diane M. HixsonATTORNEY'S DOCKET No. TURKP0113US**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(DO/EO/US)**

In re national phase of:

Applicant(s): Dieter Döhring  
Anton Ott

International Application No.: PCT/EP99/00606

International Filing Date: 26 January 1999

Title of Invention: METHOD FOR PRODUCING LAMINATE  
COATINGS, AND LAMINATE COATING**TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED  
OFFICE (DO/EO/US) CONCERNING ENTRY INTO U.S. NATIONAL  
PHASE UNDER 35 U.S.C. 371**

Box PCT  
Assistant Commissioner for Patents  
Washington D.C. 20231

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information under 35 U.S.C. 371:

1. This express request to immediately begin national examination procedures (35 U.S.C. 371(f)).
2. The U.S. National Fee (35 U.S.C. 371(c)(1)) and other fees (37 CFR 1.492) as indicated below.

3. A copy of the International application (35 U.S.C. 371(c)(2)):

- [X] is transmitted herewith  
(International Publication No. PCT/EP99/00606).
- [] is not required, as the application was filed with the United States Receiving Office.
- [] has been transmitted by the International Bureau. A copy of Form PCT/1B/308 is enclosed.

4.  [X] A translation of the International application into the English language (35 U.S.C. 371(c)(2)) is transmitted herewith.

5. Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. 371(c)(3)):

- [] are transmitted herewith.
- [] have been transmitted by the International Bureau.

6.  [] A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. 371(c)(3)) is transmitted herewith.

7. A copy of the international examination report (PCT/IPEA/409)

- [] is transmitted herewith.
- [] is not required as the United States Patent and Trademark Office was the IPEA.

8. Annex(es) to the international preliminary examination report

- [] is/are transmitted herewith.
- [] is not required as the United States Patent and Trademark Office was the IPEA.

9.  [] A translation of the annexes to the international preliminary examination report is transmitted herewith.

10.  [] An oath or declaration of the inventor (35 U.S.C. 371(c)(4)) complying with 35 U.S.C. 115 is submitted herewith.

Transmittal Letter to United States Designated/Elected Office

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11. An International Search Report (PCT/ISA/210)
  - a.  is transmitted herewith.
  - b.  has been transmitted by the International Bureau.
  - c.  is not required, as the application was searched by the United States International Searching Authority.
12.  An Information Disclosure Statement under 37 CFR 1.97 and 1.98 is transmitted herewith, along with Form PTO-1449 and copies of citations listed.
13.  An assignment document is transmitted herewith for recording, along with a separate cover sheet.
14.  A preliminary amendment is enclosed.
15.  A verified statement claiming small entity status is enclosed.
16.  Other:

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529 Rec'd PCT/PTO 26 SEP 2000

Basic National Fee					Fee
IPEA - US				\$670.00	
ISA - US				\$760.00	
PTO not ISA or IPEA				\$970.00	
Claims meet PCT Art. 33(1)-(4) - IPEA - US				\$96.00	
Filing with EPO or JPO search report				\$840.00	
Enter appropriate basic fee →					\$840.00
Claims*	Number filed		Number extra	Rate	
Total claims	6	-20	0	\$18.00	\$0.00
Independent claims	1	-3	0	\$78.00	\$0.00
Multiple dependent claims (if applicable)				\$260.00	
Total of above					\$840.00
Small entity statement enclosed, 1 if Yes, 0 if No →				0	\$0.00
Total national fee					\$840.00
Fee for recording enclosed assignment				\$40.00	
Total fees enclosed					\$840.00

\*After any attached preliminary amendment reducing the number of claims and/or deleting multiple dependencies.

A check in the amount of \$ 840.00 to cover the above fees is enclosed.

Please charge our Deposit Account No. 18-0988 in the amount of \$       . A duplicate copy of this sheet is enclosed.

WARNING: TO AVOID ABANDONMENT OF THE APPLICATION THE BASIC NATIONAL FEE MUST BE PAID WITHIN THE 20/30 MONTH TIME LIMIT.

16. The Commissioner is hereby authorized to charge the following additional fees that may be required by this paper and during the entire pendency of this application to our Deposit Account No. 18-0988:

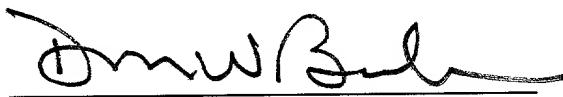
a.  37 CFR 1.492(a)(1), (2), (3), (4) and (5) (filing fees)

WARNING: BECAUSE FAILURE TO PAY THE NATIONAL FEE WITHIN 30 MONTHS WITHOUT EXTENSION (37 CFR § 1.495(B)(2)) RESULTS IN ABANDONMENT OF THE APPLICATION, IT WOULD BE BEST TO ALWAYS CHECK THE ABOVE BOX.

b.  37 CFR 1.492(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid on these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

Respectfully submitted,



Don W. Bulson, Reg. No. 28,192

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KRONOSPAN

TECHNICAL COMPANY LTD, Iasonos Street,

Nicosia 1082, Cyprus

Method of Producing Laminate Coatings and the Laminate Coating

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The invention relates to a method of producing laminate coatings, which are suitable for, and designed in particular for, floor tiles, and which comprise a decorative paper impregnated with an amino resin and a wear-resistant covering layer or coating applied thereon with a particulate fine 10 aluminium oxide (corundum). The invention also relates to such a laminate coating.

It is known (DE 195 08 797 C 1), to produce wear-resistant laminate 15 coatings for floor tiles in such a way that, onto the visible surface of a decorative paper, after steeping of the latter in resin and drying to a residual moisture content, a wear-resistant mineral component having fine particle size comprising a viscous mixture of melamine resin, cellulose fibres, corundum, and additives and water is applied in such quantity that a after the attainment of the final moisture content the coating has a 20 thickness of 20 to 50  $\mu\text{-m}$ , whereupon the resulting coated decorative sheet is dried to the final moisture content in at least one further working step.

In this known process there is applied to the paper, steeped in melamine 25 resin and dried, a viscous mixture which contains the fine-particle aluminium oxide or corundum which determines the wear resistance of the finished product. The fine particle corundum particles are distributed more or less uniformly in the covering layer formed of the viscous mixture and accordingly are also present on the surface of the covering 30 layer.

It is further known to produce laminate coatings for floor tiles in such a way that on the upper or visible face of a decorative paper impregnated with amino resin or melamine resin there is applied an overlay which has 5 on the upper surface of a substrate made of paper the fine particles of aluminium oxide or corundum which provide the wear resistance.

These two known processes require two separate method steps, namely on the one hand the manufacture of a separate mixture containing the 10 corundum particles and the application of it, and on the other hand the production of a separately applied overlay. To this extent these known processes are relatively expensive and thereby hardly economical.

A further and significantly more important drawback lies in the fact that 15 pressing plates or pressing bands used for the mechanical production of the laminate coatings are damaged by abrasion by the corundum particles present on the surface of the laminate, which leads to a relatively rapid dulling of the surface of the finished laminate coatings. Accordingly the pressing plates or pressing bands made of sheet metal used when applying 20 the known manufacturing technique have to have their surfaces machined or ground relatively frequently in order to compensate for dulling of their surfaces. The running time of the pressing plates or pressing strips is accordingly relatively short.

25 The machining of the surfaces of the pressing plates or pressing bands not only gives rise to high machining costs but also to down times of the correspondingly equipped presses, which has a negative influence on the economy of the wear-resistant production of the laminate coatings.

The invention is based on solving the problem of making the manufacture of wear-resistant laminate coatings more economical than hitherto.

5 This problem is solved according to the invention by a process having the features of Claim 1.

Preferred embodiments of the invention are the subject of the other claims.

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According to the present invention a laminate coating for floor tiles or similar uses can be produced in one step, the particles of aluminium oxide or corundum which produce the wear resistance of the laminate coating being encapsulated on the surface of the coating in such a way  
15 that they cannot damage the pressing plates or pressing bands of the machines or presses used for producing the laminate coatings.

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The material covering layer of fibre material containing melamine resin applied to the impregnated decorative paper after the spreading of the particulate aluminium oxide is transparent, so that the pattern on the decorative paper is clearly visible. On account of the covering of the particles which produce the wear resistance of the end product during the manufacture of the laminate coating a dulling and thereby damage to the surface of the laminate coating produced is not to be expected even after  
25 long periods of use of the pressing plate or pressing bands of the machine or process.

30

In other words the surface of the laminate coating produced in accordance with the invention remains clear because the fibre fleece applied as encapsulation for the corundum particles does not alter or adversely affect

the visibility of the pattern on the paper, but on the other hand protects the pressing plates or pressing bands of the presses or other production machines used for the manufacture of the laminate coating against premature wear.

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The laminate coatings according to the invention could for example be applied to plywood sheets or fibre tiles which have been previously provided on the top surface and/or the lower surface respectively with a backing layer designed to resist removal.

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The invention is further explained in conjunction with two embodiments by way of example.

**Example 1:**

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A decorative or patterned paper having an area density of 70 g/m<sup>2</sup> is first steeped in melamine resin in an immersion bath, the density amounting to 140 g/m<sup>2</sup> after drying. Corundum is spread onto the still damp paper web in a quantity of 20 g/m<sup>2</sup>.

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The paper is then subjected to a intermediate drying step at a temperature of 180° C to bring it to a moisture content of 15%.

25

There is then applied to this paper web a fibre fleece having a density of 80 g/m<sup>2</sup> comprising 80 % melamine resin and 20 % cellulose fibres having a length of 60 µ-m. The final drying then takes place at 180° C to a moisture content of 6.0. to 6.5 %

The impregnate thus produced is pressed in a short stroke press at a temperature of 205° C, a specific pressure of 2.5 MPa and a pressing time of 20 s to produce an HDF supporting plate.

- 5 The laminate floor covering thus obtained fulfils the requirements of the standard EN 438 and has a wear value IP of 10,000.

**Example 2:**

A patterned paper having a density of 80 g/m<sup>2</sup> is steeped in a melamine  
5 resin, the density after the subsequent drying amounting to a 150 g/m<sup>2</sup>. Fine-particle aluminium oxide is spread on the still damp paper web in a quantity of 8 g/m<sup>2</sup>. The paper web is then dried at 210° C to a moisture content of 12 %. Subsequently a fleece of 40 g/m<sup>2</sup>, comprising 85 % melamine resin and 15 % glass fibres having a length of 3 mm and a diameter of 10 µ-m is applied. The further procedure corresponds to  
10 Example 1.

## I CLAIM:

5    1. A process for producing laminate coatings comprising the steps of:  
      a) Taking a wet patterned or decorative paper impregnated with a  
            melamine resin;  
      b) spreading particulate fine aluminium oxide (corundum) onto the  
            still wet paper before drying to pre-treat said paper;  
10    c) pre-drying or pre-condensing said paper;  
      d) applying a covering layer of fibre material containing melamine  
            resin onto said pre-treated paper; and  
      e) finally drying the whole.

15    2. Process according to Claim 1, wherein said fibre material  
            comprises a fibre fleece containing melamine resin is applied to the  
            decorative paper as the covering layer.

20    3. Process according to Claim 1, wherein aluminium oxide or  
            corundum having a particle size of about 125  $\mu\text{-m}$  is spread on the  
            decorative paper.

25    4. Process according to Claim 1, wherein the density of the coated  
            decorative paper after drying amounts to about 140 to 150 g/m<sup>2</sup>.

5. Process according to Claim 1, wherein the aluminium oxide is  
            spread in a quantity of about 20 g/m<sup>2</sup>.

30    6. Process according to Claim 1, wherein the aluminium oxide is  
            spread in a quantity of about 8 g/m<sup>2</sup>.

Attorney Docket No. TURKP0113US**PATENT (OUS)**

**COMBINED DECLARATION AND POWER OF ATTORNEY**  
**(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT)**

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; and I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Title: **METHOD OF PRODUCING LAMINATE COATINGS AND THE LAMINATE COATING**

the specification of which

is attached hereto, or

was filed as United States Application No.: **PCT/EP99/00606**  
 Application or PCT International (Express Mail Label No.)  
 Application (give Express Mail label Filing Date: **January 26, 1999**  
 number and deposit date if (Deposit Date)  
 Application number not yet known): Amended on (if applicable):

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56(a).

**PRIORITY CLAIM**

I hereby claim priority benefits under Title 35, United States Code, §119 of (i) any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed; and (ii) any United States provisional application(s) that is/are listed below.

no such applications have been filed.  
 such applications have been filed as follows.

**EARLIEST FOREIGN/PROVISIONAL APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS  
 (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED	
			Yes	No

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS  
 (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

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## POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

*3* Armand P. Boisselle, Reg. No. 22,381; Warren A. Sklar, Reg. No. 26,373; Don W. Bulson, Reg. No. 28,192

The undersigned to this declaration and power of attorney hereby authorizes the U.S. attorney(s) named herein to accept and follow instructions from

Authorized representative: Gille Hrabal Struck Neidlein Prop Roos, Brucknerstr. 20, D-40593 Düsseldorf, Germany

as to any actions to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney(s) and the undersigned. In the event of a change in the person(s) from whom instructions may be taken, the U.S. attorney(s) will be so notified by the undersigned.

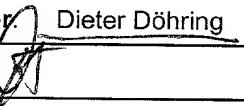
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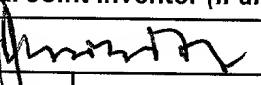
(name and telephone number)

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued therein.

<b>Full Name of Sole or First Inventor:</b> <u>Dieter Döhring</u>			
Inventor's signature:		Date:	<u>26.9.00</u>
Residence: (City & State/Country):	<u>Lampertswalde/Germany</u>		Citizenship: <u>Germany</u>
Post Office Address:	Mühlbacher Straße 1 D-01561 Lampertswalde Germany		

<b>Full Name of Additional Joint Inventor (if any):</b> <u>Anton Ott</u>			
Inventor's signature:		Date:	<u>26.9.00</u>
Residence: (City & State/Country):	<u>Lampertswalde/Germany</u>		Citizenship: <u>Germany</u>
Post Office Address:	Mühlbacher Straße 1 D-01561 Lampertswalde Germany		

## CHECK FOR ANY OF THE FOLLOWING ADDED PAGE(S) WHICH FORM A PART OF THIS DECLARATION

- Signature for additional joint inventors.
- Added page to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (CIP) application.
- This declaration ends with this page.